

In the Claims

- 1 1. (original) An enclosure for an optical communications device that joins with a
2 connector of an optical cable, the enclosure comprising:
3 a base portion;
4 a lid portion having focusing elements and affixed to the base portion, wherein the lid
5 portion and the base portion are adapted to receive at least a portion of the optical
6 communications device therebetween; and
7 at least one alignment member formed on the lid portion, the alignment member
8 adapted to interface with the connector to align the connector relative to lid portion.

- 1 2. (original) The enclosure of claim 1 wherein the lid portion is recessed to receive at
2 least a portion of the optical communications device therebetween.

- 1 3. (original) The enclosure of claim 1 wherein the at least one alignment member is
2 metal deposited into the shape of the at least one alignment member.

- 1 4. (original) The enclosure of claim 3 further comprising a preliminary layer on the
2 lid portion to promote adhesion of the deposited metal.

- 1 5. (original) The enclosure of claim 1 wherein the at least one alignment member is a
2 prefabricated alignment member bonded to the lid portion.

1 6. (original) The enclosure of claim 5 further comprising a preliminary metal layer on
2 the lid portion, and wherein the prefabricated alignment member comprises metal welded to
3 the preliminary metal layer.

1 7. (original) The enclosure of claim 1 wherein the at least one alignment member is
2 shaped from the lid portion.

1 8. (original) The enclosure of claim 1 wherein the at least one alignment member is a
2 microsphere.

1 9. (original) The enclosure of claim 1 wherein the lid portion further comprises at
2 least one recess which receives the at least one alignment member.

1 10. (original) The enclosure of claim 1 wherein at least a portion of the lid portion is
2 transparent and the focusing element is formed into the lid portion.

1 11. (original) The enclosure of claim 1 wherein the at least one alignment member
2 has a flared base portion.

1 12. (original) The enclosure of claim 1 wherein the at least one alignment member is
2 formed on an overlay, and the overlay is affixed to the lid portion.

1 13. (original) A method of fabricating an optical interconnect device, the optical
2 interconnect device including optical-electrical components for interfacing an optical and an
3 electrical signal, comprising:
4 forming at least two alignment members on a substrate;
5 affixing the substrate to a base material with at least a portion of the optical-electrical
6 components therebetween; and
7 segmenting the affixed substrate and base material into at least two portions of affixed
8 substrate and base material, each portion having at least one alignment member.

1 14. (original) The method of claim 13 wherein forming at least two alignment
2 members comprises depositing material in the shape of at least two alignment members.

1 15. (original) The method of claim 14 further comprising using a mold to shape the
2 deposited material.

1 16. (original) The method of claim 14 wherein the material is a metal deposited in a
2 chemical vapor deposition process.

1 17. (original) The method of claim 14 wherein the material is a curable material that
2 bonds with the substrate as it hardens.

1 18. (original) The method of claim 14 further comprising the step of depositing a
2 preliminary layer on the substrate to promote adhesion of the at least two alignment
3 members.

1 19. (original) The method of claim 13 wherein forming at least two alignment
2 members comprises molding the at least two alignment members together with the substrate.

1 20. (original) The method of claim 13 wherein forming the at least two alignment
2 members comprises machining the substrate to form the at least two alignment members.

1 21. (original) The method of claim 13 where forming the at least two alignment
2 members comprises etching the substrate using photolithography techniques to form the at
3 least two alignment members.

1 22. (original) The method of claim 14 wherein forming the at least two alignment
2 members on the substrate comprises affixing at least two prefabricated alignment members to
3 the substrate.

1 23. (original) The method of claim 14 wherein forming the at least two alignment
2 members on the substrate comprises affixing an overlay having at least two alignment
3 members thereon to the substrate.

1 24. (original) The method of claim 14 further comprising etching the substrate using
2 photolithography techniques to form at least one recess; and
3 wherein the step of depositing material in the shape of at least two alignment
4 members further comprises depositing material into the at least one recess in the shape of at
5 least one of the at least two alignment members.

1 25. (original) A structure divisible into two or more optical communication devices,
2 each optical communications device having at least one optical electrical device, and each
3 optical communications device adapted to join with a connector of an optical cable, the
4 structure comprising:

5 a first substrate having at least two optical electrical devices thereon;
6 a second substrate affixed to the first substrate with the at least two optical electrical
7 devices positioned therebetween; and
8 at least two alignment members formed on the second substrate and each alignment
9 member adapted to interface with the connector to align the connector in relation to the
10 second substrate.

1 26. (original) The structure of claim 25 wherein at least one of the at least two
2 alignment members is a prefabricated alignment member bonded to the second substrate.

1 27. (original) The structure of claim 25 wherein at least one of the at least two
2 alignment members is shaped from the second substrate.

1 28. (original) The structure of claim 26 wherein at least one of the at least two
2 alignment members is a microsphere.

1 29. (original) The structure of claim 25 further comprising at least two optical
2 components on the second substrate.

1 30. (original) The structure of claim 26 wherein at least one of the at least two
2 alignment members is formed on an overlay and affixed to the second substrate.

1 31. (original) The structure of claim 25 wherein at least a portion of the second
2 substrate is transparent and the second substrate further comprises at least two optical devices
3 formed in the second substrate.

1 32. (currently amended) An electro-optical interconnect device for coupling to a
2 parallel fiber-optic cable:
3 an electro-optical transducer;
4 a base including an integrated circuit electrically connected to said electro-optical
5 transducer; and
6 a lid including an array of optical elements optically coupled to said electro-optical
7 transducer, said lid assembly including having at least one pin alignment member formed
8 thereon for engaging said cable, said lid assembly and said base assembly collectively
9 enclosing said electro-optical transducer.

1 33. (original) A device as recited in claim 32 wherein said electro-optical transducer
2 is disposed between said integrated circuit and said array of optical elements.